

IA

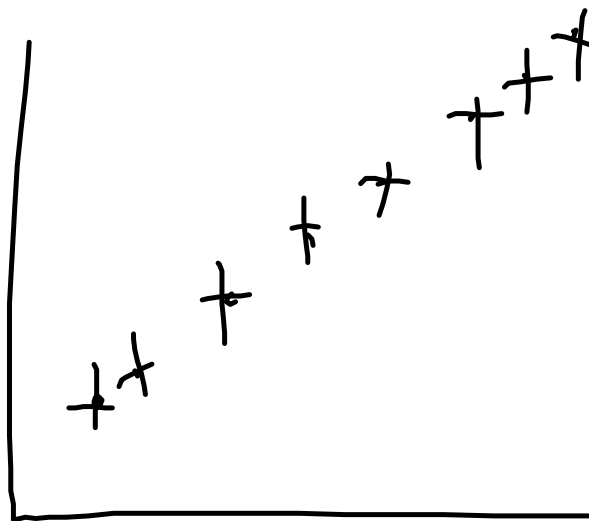
Make sure you include uncertainties with every measurement

How many measurements?

minimum of 25? data points (depends)

3 trials with at least range of 8.

or 5 trials with range of 5



How do you estimate uncertainties?

- 1- tools - analogue - $\frac{1}{2}$ of the smallest division, digital use the smallest division, if the tolerance (uncertainty) is specified - use that. eg. resistors has a specified tolerance - usually 5%

2- eg. 2.4, 2.7 and 2.6 you can use the range/2 to get an estimate 2.55 ± 0.15 (old curriculum you would change it to 2.6 ± 0.2 but you can use 2.55 ± 0.15 now)

3- keen - you can use the standard deviation

Show sample calculations:

Add or subtract you add the absolute uncertainty.

Multiply or divide you add the percent uncertainty

powers you multiply the percent uncertainty by the power

what about roots, sines or other functions?

you can just keep the percent uncertainty will be fine

keen, you can brute force the calculation

8 ± 1 - calculate with 7, and 9 then range /2

